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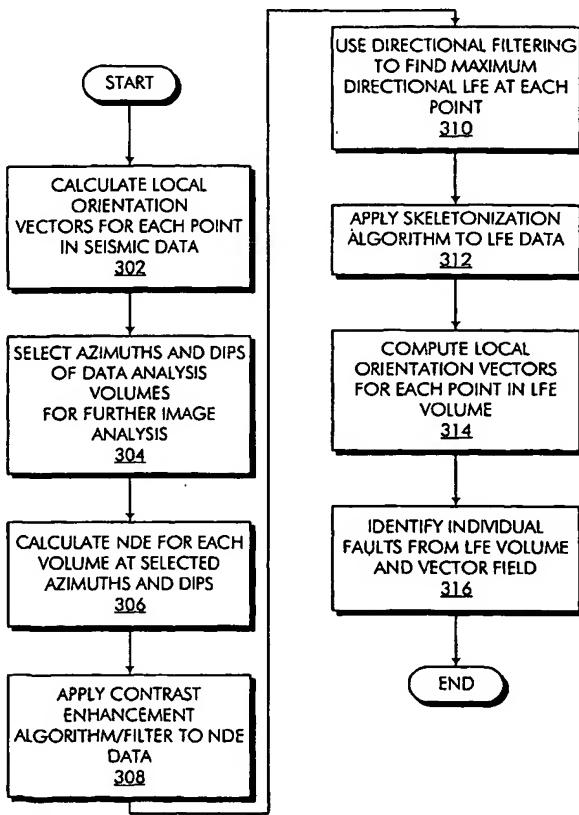
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#### Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR)*

*[Continued on next page]*

(54) Title: METHOD AND APPARATUS FOR SEISMIC FEATURE EXTRACTION



(57) Abstract: A method and apparatus for seismic image processing is disclosed. A preferred embodiment aids in the identification of subterranean faults, which are significant in hydrocarbon exploration. The method includes steps of: a) reading a three dimensional seismic data volume; b) computing the three-dimensional orientation of the subsurface; c) subdividing the original volume into small data volumes that are rotated at a predetermined set of dips and azimuths related to those of the subsurface orientation; d) computing a 3-D edge detection measure on the small volumes formed in step c; e) performing a 3-D contrast enhancement operation in each of the small volumes; f) filtering the result of the contrast enhancement with selected 3-D filters at the predetermined set of dips and azimuths; g) skeletonizing the results of the filtering operation; h) separating the individual fault surfaces, and i) labelling the individual fault surfaces for further interpretation and exploration.

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- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for the following designations European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR)
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# INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**  
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According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, COMPENDEX, INSPEC

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02/03099 A (EXXONMOBIL UPSTREAM RES CO) 10 January 2002 (2002-01-10) page 7, line 5 - line 25 ---	1,30
A	HOCKER CHRISTIAN ET AL: "Fast structural interpretation with structure-oriented filtering" LEADING EDGE;LEADING EDGE (TULSA, OK) MARCH 2002, vol. 21, no. 3, March 2002 (2002-03), XP002280877 the whole document ---	1,30
A	US 2002/116131 A1 (MEEK ROBERT A) 22 August 2002 (2002-08-22) paragraphs '0017!-'0020! ---	1,30 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	CARTER NICHOLLE ET AL: "Fault imaging using edge detection and coherency measures on Hibernia 3-D seismic data" LEADING EDGE;LEADING EDGE (TULSA, OK) JAN 2001 SOC OF EXPLORATION GEOPHYSICISTS, TULSA, OK, USA, vol. 20, no. 1, January 2001 (2001-01), XP002280878 the whole document	1,30

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